

Abstract

A small and light-weighted electron accelerator (2, 40, 60) using a fixed-field alternating gradient of high electron beam intensity is provided with a vacuum container (10), an electric magnet (20) provided in the vacuum container, an electron beam inputting part (11) to input electron beam into the vacuum container (10), an accelerating apparatus (13) to accelerate electron beam, and an electron beam transporting part (26) to transport the accelerated electron beam from the vacuum container (10), and the electric magnet (20) is either an alternating gradient electric magnet made up with a converging electric magnet (21) and divergent electric magnets (22) provided at its both sides, or an alternating gradient electric magnet made up with a converging electric magnet (21) and divergent parts provided at its both sides, and an internal target (25) to generate X-ray is provided inside the vacuum container (10) right before the electron beam transporting part (26), and the accelerated electron beam and X-ray are selectively output. Since the electron beam of more than 10 times the prior cases, 1 to 10 mA at the acceleration voltage of 10 MeV, a radiation medical treatment apparatus (1) can be offered which is capable of irradiating electron beam to cancer organism or others in short time less than 1/10 of the prior cases.